



# UNITED STATES PATENT AND TRADEMARK OFFICE

SA

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|--|-------------|----------------------|-----------------------|------------------|
| 10/510,583   | 10/08/2004  | Norbert Auner        | WAS0662PUSA           | 1904             |
| 22045  | 7590        | 05/15/2006           | EXAMINER              |                  |
| BROOKS KUSHMAN P.C.<br>1000 TOWN CENTER<br>TWENTY-SECOND FLOOR<br>SOUTHFIELD, MI 48075 |             |                      | NWAONICHA, CHUKWUMA O |                  |
|  |             |                      | ART UNIT              | PAPER NUMBER     |
|  |             |                      | 1621                  |                  |

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                       |  |                |  |
|------------------------------|-----------------------|--|----------------|--|
| <b>Office Action Summary</b> | Application No.       |  | Applicant(s)   |  |
|                              | 10/510,583            |  | AUNER, NORBERT |  |
|                              | Examiner              |  | Art Unit       |  |
|                              | Chukwuma O. Nwaonicha |  | 1621           |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 24-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Current Status*

Claims 24-53 are pending in the application.

### *Priority*

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claim** 24-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants admission in view of Lewis et al., {6,528,674 same as WO 2001081354} in view of Griesshammer et al., {CN 1153138}

Art Unit: 1621

Applicant claims a process for preparing halogen-containing silanes of the general formula I:



Formula I

comprising reacting silicon, under the action of **microwave energy**, with elements or compounds selected from the group consisting of halogens; halogens and organohalogen compounds; halogens and hydrogen; halogens and hydrogen halides; organohalogen compounds; organohalogen compounds and hydrogen; organohalogen compounds and hydrogen halide; hydrogen halides; fluorosilanes and hydrogen; fluorosilanes and hydrogen halide; hydrogen-containing chlorosilanes and hydrogen; hydrogen-containing chlorosilanes and hydrogen halides; organohalosilanes and hydrogen; organohalosilanes and hydrogen halides; and hydrocarbons and hydrogen halides; wherein all the variables are define in the claims.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Lewis et al., teach a method for making an alkylhalosilane; wherein the method comprises heat treating silicon and a form of copper at a temperature greater than about 500°C to produce a contact mass and effecting the reaction between an alkyl halide and silicon in the presence of the contact mass to produce alkylhalosilane.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)**

The difference between the claimed invention and the above recited prior art is that the prior art is narrower in scope. Specifically, Lewis et al. teach a process that

employed alkyl halide while applicant claims a process that employs halogens; halogens and organohalogen compounds; halogens and hydrogen; halogens and hydrogen halides; organohalogen compounds; organohalogen compounds and hydrogen; organohalogen compounds and hydrogen halide; hydrogen halides; fluorosilanes and hydrogen; fluorosilanes and hydrogen halide; hydrogen-containing chlorosilanes and hydrogen; hydrogen-containing chlorosilanes and hydrogen halides; organohalosilanes and hydrogen; organohalosilanes and hydrogen halides. Another difference between applicant claimed invention is that Lewis et al. teach a process that employed the conventional heating as the heat source while applicants claim a process that employs microwave as the heat source.

However the secondary reference of Griesshammer et al. teach a process producing trichlorosilane comprises reducing tetrachlorosilane in a fluidised bed reactor containing Si particles, in which a reaction gas containing H<sub>2</sub> and tetrachlorosilane is passed through the fluidised bed to react with the Si particles and produce a product gas containing trichlorosilane. The product gas can be removed from the reactor. The novelty is that the Si particles are heated by microwaves to 300-1100°C. See abstract.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)**

The instantly claimed process for preparing halogen-containing compounds under microwave energy would have been suggested to one of ordinary skill because one wishing to obtain halogen-containing compound is taught to use microwave energy or the conventional heating as the heat source for the process.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention since Lewis et al. and Griesshammer et al. teach the use of microwave energy or the conventional heating as the heat source in reactions requiring the application of heat to produce halogen-containing compound. Said one of ordinary skill in the art would have been motivated to practice the teaching of the references cited because they demonstrate that reaction between silicon and elements or compounds containing halogen can be carried out with a microwave energy or the conventional heating to achieve fast rate of reaction, short reaction time, reduced by-product and high product yield. The instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

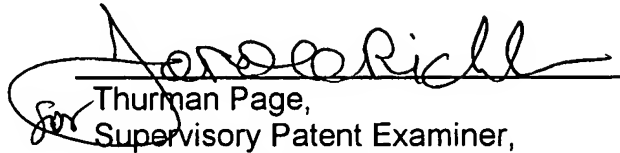
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman k. Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1621

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621

  
for Thurman Page,  
Supervisory Patent Examiner,  
Technology Center 1600